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COMMENTARY

# Practical approaches to pedagogically rich online tutorials in health professions education

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Ethics approval was not applicable to this paper which does not describe original research.



## ABSTRACT:

Health professions education in tertiary, industrial and other contexts often entails face-to-face small group learning through tutorials. The current novel coronavirus, COVID-19, has reduced face-to-face contact, and this has challenged how health professionals and clinical students can access training, accreditation and development.

Online and other remote mechanisms are available to tutors and course designers; however, they might not feel comfortable with such affordances, in light of expectations to so rapidly change

familiar teaching and delivery styles. This may result in the loss of interaction and disruption of peer learning, which are hallmarks of the small group tutorial. Collaborative learning is essential to develop and refine an emerging sense of belonging to a professional community through formal studies, and interactive learning is a requirement for some registered health professions to satisfy ongoing professional accreditation.

Online media has been used to promote social learning in regional, rural and remote communities for some time. Strategies for learning activity design and tutor training are proposed to equip course designers and educators to support health professions education remotely, through the synchronous, online small group. This may herald a new era of increased access to training and professional development for non-urban learners, beyond COVID-19.

Keywords:

distance learning, health professions education, online tutorial, peer learning, small group learning, social constructionism, social constructivism.

## FULL ARTICLE:

**Background**

Health professions education (HPE) has typically leveraged a range of teaching approaches, with small group tutorials a common feature. Curricula worldwide have supplemented the mass reach of a lecture with tutorials to enable students to apply, problem-solve and work in collaboration with peers as they explore course content, usually under the guidance of a tutor or facilitator. This small group work, when crafted with robust educational activity design, can be a tool to generate student cohesion, group identity, and enable the socially mediated development of applied knowledge among a group of emerging healthcare professionals.

In HPE, small group teaching sessions are typically conducted face-to-face. When delivered effectively, a tutorial enables social learning by fostering interaction between learners, and between learners and facilitator. This in turn supports the development of meaning in the context of shared understanding and a community of practice[1,2]. Learner co-habitation of time and space, while working toward a shared professional goal, facilitates peer learning while reducing dependence on the tutor to disseminate knowledge[3], with knowledge instead becoming shared between all[4]. Modern technology has supported the reconfiguration of face-to-face teaching using online formats, and while some studies indicate the value of emerging technologies in HPE[5,6], students reportedly prefer learning new content through traditional face-to-face approaches[7].

The current novel coronavirus, COVID-19, has reduced the capacity of tertiary and professional HPE to support face-to-face small group learning. Citizens worldwide have been urged to maintain varying degrees of social distance, and many education organisations have mandated that all education activities be transferred to fully online media. This is particularly problematic for HPE, which aims to enable students to develop a sense of personal professional identity through learning. As educators work to rapidly transfer interactive small group learning to online media, it may be difficult to apply core, familiar learning theories amidst the workload and navigation of new technologies. Furthermore, the annual registration standards for some health professionals require a minimum number of hours in interactive professional development, necessitating a 'two-way flow of information and occurs with other practitioners'[8-10]. HPE designers must therefore ensure that quality interactive activities remain available to both tertiary and professional learners.

Due to the very nature of their educational environment, regional, rural and remote health professionals and educators are no strangers to the benefits of quality, interactive, remote learning. Regional, rural and remote clinicians have an existing reliance on video-conferencing technology, in supporting both their patients' clinical needs, and students to establish remote learning communities[11] and engage in socially collaborative learning. The changes COVID-19 has entailed for HPE have the capacity to build on this existing use of technology to dramatically increase access to professional development and learning in the world's non-urban areas. Alternatively, if HPE designers instead simply bear through the imminent changes before planning a full return to previous, face-to-face-dependent education, the opportunities for regional, rural and remote HPE may be unfulfilled.

This article considers established learning theories, with examples of how they might apply to small group HPE activities during COVID-19 and beyond. It will propose pedagogically informed and engaging online small group learning to address the current needs of HPE, and promote improved future access to rich online learning for the diaspora of RRR clinicians and students. In this article, we use the term 'tutorial' to encompass various types of synchronous, interactive small group teaching activities.

**Face-to-face tutorials**

Tutorials are commonplace in HPE as tools to reinforce, challenge and apply knowledge learned through more didactic approaches. They foster an environment where reasoning, analysis and rationale are explored through contextual learning such as case-based, problem-based and team-based group learning activities, and are most commonly (but not always) facilitated by a tutor[12]. That which is explored in tutorials are further developed in contextual applications such as practical training, simulation and clinical placement. Therefore, tutorials may be seen as means to extend from the first stage of Miller's pyramid (knowing) to the second (knowing how), before showing and doing are incorporated in practice[13]. In a face-to-face tutorial, group dynamics can be readily perceived and managed, and affordances offered by the physical space (whiteboards, projectors and

furniture) can be easily used. The tutor can encourage involvement in a reserved group, for example by electing one student as the case leader and another as the scribe. Additionally, the tutor can easily monitor the learning and engagement of those present by noting body language, tone and facial expression.

**From face-to-face to online tutorials**

With this historical context in mind, the transition from face-to-face group teaching to online tutorials may bring many course designers and educators into uncharted territory. No longer can educators use a subtle look to draw further discussion from the group, or reposition their chair to redirect attention to the topic at hand. Tools such as mapping an argument on the whiteboard for all to see and easily follow along can also become difficult to utilise. In the online tutorial, students are seated with mobile devices at hand, with a raft of distractions ready to compete for attention. In an online group, the educator's ability to develop relationships with the learners may be hampered; therefore, the identification of individuals' motivations, difficulties and experiences may not be so apparent. As with online lectures, an online tutorial group can be perceived by students as a passive learning activity, which can occur with the camera disabled and microphone muted, while other distracting home tasks are performed.

***Pitfalls of online tutorials***

Online tutorials can be perilous in both design and execution. Some software used to deliver online tutorials will limit the number of faces visible at any given point, and therefore tutor attention may be restricted only to those who are in view. Keeping mental track of those out of view may become too mentally taxing, and more reserved group members may not be heard. As such, large groups may draw the tutor into a didactic, traditional lecture format.

Planning the presentation of passive information through the use of many dense visual slides gives students a lot to read from their mobile devices and will disengage those who are only able to join by audio. Students will focus on processing what is in the screen, and neglect the opportunity to analyse, problem-solve, explore and create learning together.

***Planning and delivering an online tutorial***

Various strategies exist to guide online learning and assessment, such as the Technology Enhanced Learning Accreditation Standards (TELAS), developed by the Australasian Society for Computers in Learning in Tertiary Education. TELAS is one example of a framework designed to critique and assess online learning activities, resources, support and assessment tasks, to ensure that learner engagement, alignment between objectives and outputs and communication are maximally supportive of learning.

**Flipping the classroom**: A flipped classroom replaces teacher-led didactic content with preparatory individual or group activities, before engaging students in interactive face-to-face sessions[14]. The flipped classroom is therefore seen as an alternative to the dependence on face-to-face lectures[15], promoting active and personalised learning[5]. Returning to an example presented in a previous article in this Special Series[16], the learner's existing schemata might be analogous to a backyard shed, and new learning material is a delivery of goods from the local hardware store. Flipping the classroom allows the student to explore the hardware catalogue (prescribed readings and other self-directed exercises) before the delivery arrives (the interactive session where the new knowledge is refined and applied). This allows individuals to begin to organise the new learning within their existing schemata before building and applying knowledge among peers to adapt schemata collaboratively to reflect shared meaning[17].

Whether an online tutorial is part of a flipped classroom or follows an interactive synchronous lecture, the principles remain applicable. Students must have opportunities to interact with the tutor and each other, to co-construct professionally relevant meaning with their peers.

**Preserving opportunities for meaningful interaction**: Interactions among learners and tutor might occur in different ways. The metaphors of the tennis match and the mouse traps illuminate the issue. In the tennis match metaphor, player 1 (the tutor) serves a question to the other player (a learner or group of learners), who responds to the tutor. This exchange continues, back and forth, in a structured manner. This approach is obviously interactive, but it is also dependent on the tutor, and a power differential may be palpable.

For the mouse traps metaphor, the learners in the group are represented by thousands of primed traps set out on the floor of a room. The tutor drops a ping-pong ball into the room: a carefully designed introductory thought, question or case designed to provoke a response and tease out the complexities of learners' professional, emotional and clinical responses. A chain reaction results as the stimulus creates one idea (sets off one trap) and then another, which spontaneously catalyses three more, then five, and so on. The mouse traps can self-reload, and the tutor may have several ping-pong balls at the ready, to strategically release. The learning now develops an entity of its own, perpetuated by ongoing group investment and input.

Two schools of learning theories that can be readily applied to meaningful learner interaction are social constructivist theories and social constructionist theories. Social constructivism focuses on the learning occurring for the individual on the basis of their place in and interactions within the group[2]. Using the mouse trap analogy, an individual's mouse trap is activated differently due to the chain reaction around them, in a way that could not be achieved for the individual from a linear interaction between learner and teacher[3,18]. An individual's group belonging propels his or her learning. Social constructionism, on the other hand, focuses on the group's learning, which occurs collaboratively between learners on the basis of interaction and a negotiated, shared meaning[2,19,20]. In the mouse trap metaphor, it is the collective and unpredictable series of reactions that results in an artefact of new learning or knowledge generation for the group as a whole. The theories share some features: a precursor to learning is active student

involvement; the educator must improvise in response to the group's unpredictable needs[20]; and a sense of community (SoC), even online, can be fostered between learners[21].

***Tips for promoting interaction***

Interactive peer learning can enable communities of inquiry among learners. A communities of inquiry framework posits that educational experiences require purposeful social interaction between learners, cognitive presence and teaching presence[22,23]. Course designers can promote an interactive environment to support communities of inquiry in an online tutorial by:

- clearly identifying the core learning objectives for students and tutors
- ensuring, where slides are used, that they are not heavily text-based (Brock and Joglekar suggest no more than three bullet points or 20 words per slide[24])
- considering the use of images and animation[25-27] where possible as an adjunct to textual information to promote multimedia learning
- minimising the use of slides to increase the amount of time learners are looking at their peers and tutor
- considering the construction of small applied questions, for subgroups of three to four learners to address in virtual breakout rooms (if supported by the available software) and report back to the larger group through text input
- ensuring that learners who can only connect to the session by phone have the means to do so and are not disadvantaged
- encouraging participants to upload a photo of themselves as an avatar, so that if video feeds fail, the group still feels that they are communicating with people rather than with a system.

Training for tutors and facilitators should enable:

- familiarity with software requirements, and ensure access to technological support if required
- deviations from the pre-determined learning path to enable conversations, free thought, and to allow tutor insight into the existing group understanding
- encouragement of learners to answer each other's questions through gentle leading
- monitoring of the learners whose mouse traps may not have activated, and encouragement of the metaphoric ping-pong ball toward their corner of the virtual room
- nudging of the discussion back to the required outcomes without stifling the offerings proposed by the learners (this is, after all, what will inform later assessments) without dominating or shutting down thought offerings
- mechanisms to allow students to share their own screens in order to share relevant papers, online resources or notes
- election of a case leader or a scribe to take notes during the tutorial, sharing the responsibility as possible
- invitation to those in the group to summarise the key learning, relative to the stated objectives, and clarify if necessary
- group encouragement to note their individual and corporate knowledge gaps, and enable peer accountability to correct these (common knowledge gaps, however, may indicate an error in teaching or a problem accessing particular materials)
- student responses and questions through text chat feeds, particularly for learners who cannot access the hardware or sufficient internet speeds to engage with audio input.

Learners may not all be familiar with participating in an online-facilitated tutorial, and the inevitable technological and interaction barriers may be wearing. A tutor who acknowledges these, navigates flexible workarounds and encourages the group to share their thoughts as valuable group offerings, will promote a smooth transition to an unfamiliar yet safe learning environment. Assurances that summarised information will be sent out by the designated scribes by group email may soothe the anxieties of learners who have been hampered by poor internet connections, or who are restricted to audio and have therefore missed any slides shared.

**Conclusion**

The principles suggested in this article can be adapted to various types of small group interactive learning. Sessions designed to promote case-based, team-based or problem-based learning can all be successfully conducted online if designed to maximise social constructions of meaning, and facilitated by tutors who are equipped for this task and familiar with the technological affordances. Therefore, it is argued that the success lies not in the classification of learning approach, but in how students are engaged in the learning process. Course designers and tutors ought not feel that the prevention of face-to-face learning must damage their courses. On the contrary, online tutorials can be pedagogically informed and reach a broader range of learners and clinicians, and be facilitated by educators who would all otherwise need to leave their communities to partake. The result will be collaborative, applied, active and accessible HPE.

The transition need not be a temporary stop-gap to sustain HPE during the social limitations resulting from COVID-19. Rather, it may herald a new era of renewed teaching opportunities for rural, regional and remote educators, and richer options of engagement for learners and clinicians based beyond urban communities, into the future.

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